

# SmartWay Transport Partnership

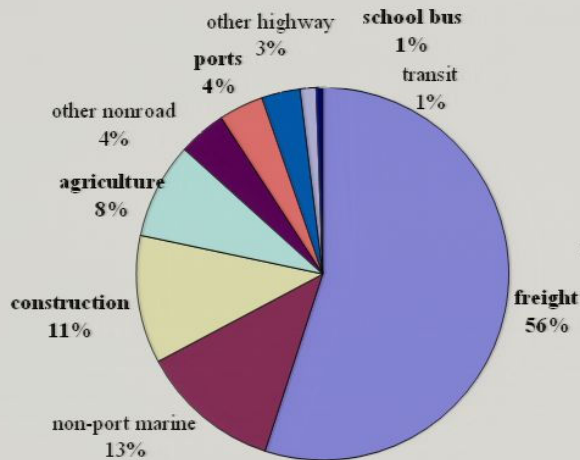


## Improving the Environmental Performance of Freight Transportation

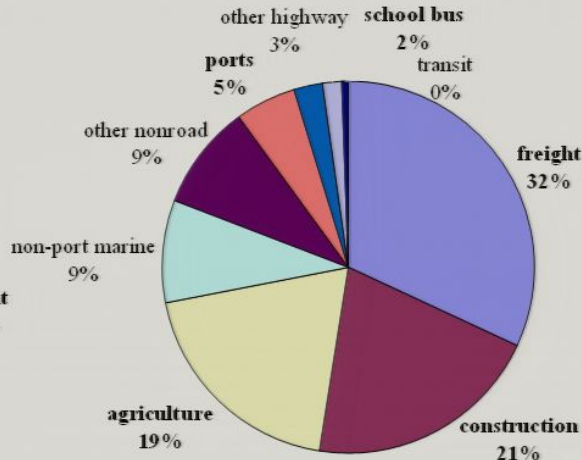
November 30, 2005

# Mobile Source Diesel Emissions Inventory by Sector (2004)

**NO<sub>x</sub>**  
(6.3 million tons)



**PM 2.5**  
(305,000 tons)



# What is the SmartWay Transport Partnership?

- **Launched February 9, 2004**
- **3 Major SmartWay Transport Components:**
  - **Corporate Partnerships** – carriers and shippers working to reduce fuel consumption and emissions.
  - **National Transportation Idle-Free Corridors** – goal to eliminate unnecessary idling along major transportation routes.
  - **Rail/Intermodal** – promote greater use of appropriate intermodal strategies.

# What is the SmartWay Transport Partnership?

- **Voluntary partnership between EPA and the freight industry:**
  - Developed jointly by EPA and 15 Charter Partners. Trucking companies represented included: Schneider, Swift, Yellow Roadway, UPS, Fedex. Freight shippers included: Coca Cola, Home Depot, and IKEA. CSX represented the railroad industry.
  - No fees to participate, and open to companies of all sizes.
  - Freight industry interests: reduce fuel consumption, public recognition, improved public image.
  - EPA interests: reduced emissions (CO<sub>2</sub>, NO<sub>x</sub>, PM) and improved energy security.

# The Charter Partners



INTERFACE



# How Does the Partnership Work?

- **Carriers (Rail and Truck):**

- Join the Partnership and agree to work toward improved efficiency and reduced fuel consumption over a 3 year period.

- **Shippers:**

- Join the Partnership and agree to work toward shipping more of their product with SmartWay Carrier Partners, as well as improving their operations over a 3 year period.

- **Logistics:**

- Join the Partnership and agree to work toward shipping more freight with SmartWay Carrier Partners, as well as bringing more of their contracted carriers into the Partnership.

# SmartWay Transport Progress

- **250 companies and organizations have joined**

- 186 Carriers, 26 Shippers, 7 Shipper/Carriers, 8 Railroads, 15 Affiliates, 9 Logistics

|                                               | Industry Totals | SmartWay Carriers | % Industry |
|-----------------------------------------------|-----------------|-------------------|------------|
| Total No. of Companies                        | 525,000         | 186               | 0.04%      |
| # of Trucks <small>(Heavy and Medium)</small> | 5,400,000       | 300,000           | 5.00%      |
| Gallons Consumed                              | 35 billion      | 2.27 billion      | 6.48%      |
| Tons CO <sub>2</sub>                          | 385,000,000     | 25,000,000        | 6.47%      |
| Tons NO <sub>x</sub>                          | 2,800,000       | 226,000           | 8.00%      |
| Tons PM                                       | 90,000          | 5,300             | 5.87%      |

- **High number of carriers based on leveraging from shippers**
- **International agreement with Canada**
- **Expanding to Mexico**



# Idling Control

- **Goal: To eliminate all unnecessary diesel engine idling**

- Truck stops, travel centers, rail yards, loading docks, markets, side of the road

- **2004: \$1 Million grant program for 9 TSE locations**

- **2005: \$5 Million grant program**

- \$3.5 million to map out high-priority zones along major transportation corridors to deploy electrified parking spaces, and deploy at 6 truck stops and 1 port, including one location in Ohio.
- \$1 million to engineer mobile idle reduction technologies (IRTs) on trucks at factory level
- \$500,000 for small trucking company or owner-operator zero-interest loan program for purchase of mobile IRTs.

- **Developing model state idling law**

- Create consistency among the various state and local idling laws



# Rail & Intermodal Operations

- **Goal: To improve the environmental performance of rail systems and to promote appropriate inter-modal opportunities**
- **Seven Class 1 Railroads joined SmartWay on May 25<sup>th</sup>, 2005**
  - Announcement made at annual John Chafee awards
  - Union Pacific, CSX, Burlington Northern Santa Fe Railway, Kansas City Railway Company, Canadian Pacific Railway, Norfolk Southern Corporation, Canadian National
  - Opens the door for Class 2 and 3 railroads to join
- **Intermodal shifts can deliver major emission reductions**
  - Generally, 3 – 9 times less emissions than trucks doing the same work

# Rail & Intermodal Operations

## Intermodal Example:

- **The Companies**

- The Manufacturer: Mills Pride Cabinets
- The Logistics company: Hub Group (SmartWay Partner)
- The Retailer: The Home Depot (SmartWay Partner)

- **The Change**

- The Hub Group helped Mills Pride switch from truck shipments of cabinetry to custom 60-foot railcars.
- The cabinets are shipped from a midwest plant location to a rail-served warehouse in Los Angeles.
- Hub Group built proprietary load designs that could load more than three truckloads into each rail car.

- **The Results**

- Through the use of intermodal shipping, Hub Group delivered cabinetry products on-time and intact, eliminated capacity constraints, reduced emissions, and reduced costs.

- **Annual Reductions and Savings Estimates:**

- 1 million gallons of diesel
- 11,000 tons CO<sub>2</sub>
- 263 tons NOx
- 8 tons PM (equivalent to PM filter retrofits on 400 Class 8B trucks or 1,600 buses)

# Marketing

## BE PART OF THE BIG PICTURE FOR CLEANER AIR



As SmartWay Partners, manufacturers can lower emissions and fuel costs by 7% or more.

## CALCULATE YOUR SAVINGS TO THE ENVIRONMENT. TO YOUR BOTTOM LINE.



For logistics managers, SmartWay® can add up to 7% in fuel savings.

## ATTENTION SHIPPING CUSTOMERS



Shopping for the smartest way to transport your products? Ship SmartWay and save 7% on fuel.

SmartWay Transport helps shippers and for-hire carriers lower greenhouse gases and other emissions, while at the same time giving the average truck a fuel savings of \$2,000 per year.

To find out more about this new partnership, call for your info kit at 1-734-214-4767 or log onto [www.epa.gov/smartway](http://www.epa.gov/smartway).



A new voluntary program from the U.S. Environmental Protection Agency

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## SHIP SMARTER



An environmentally appealing way to transport goods that's also deliciously profitable.

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# Marketing





## Deployment of SmartWay Upgrade Kits & Capitalization Opportunities

# The SmartWay Technology Upgrade Kit

- **Suite of technologies that result in significant fuel savings and substantial emission reductions**
  - Idle Reduction Device
  - Trailer Aerodynamics
  - Aluminum Wheels for Single-Wide Tires
  - Emission Control Devices (Diesel Oxidation Catalyst or Particulate Matter Filter)



# Idle Reduction Technologies

- Automatic Shut-Down/Start Up System
  - Battery Powered
  - Diesel Driven Heating System
  - Auxiliary Power Unit/Generator Set
- More information on available on-board idle reduction technologies can be found at <http://www.epa.gov/otaq/smartway/idlingtechnologies.htm>



# Trailer Aerodynamics



Gap  
Fairing

Belly  
Fairing

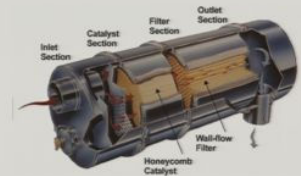


# Single-Wide Tires with Aluminum Wheels & Wide-Based Tires



# Emission Control Devices

- Diesel Oxidation Catalysts
- Particulate Matter Filters



# SmartWay Technology Financing Programs and Tools

- **Many fleets expressed an interest in investing in fuel saving equipment, but lack of capital is often cited as a major barrier.**
- **SmartWay is attempting to address this issue by developing a number of innovative financing programs:**
  - State loan programs
  - National loan programs
  - Performance contracting arrangements

# SmartWay Technology Financing Programs – State Loan Programs

- **Some states have existing loan programs through their small business or environmental offices that are able to finance SmartWay Upgrade Kits.**
- **These loan programs are often include terms that are more attractive than currently available commercial loans (e.g., low-interest rates, flexible repayment terms).**
- **SmartWay has partnered with loan programs in Arkansas, Minnesota, and Pennsylvania to offer SmartWay Upgrade Kits and is working to partner with additional states.**



# SmartWay Technology Financing Programs – Performance Contracting

- Arrangements based on the Energy Service Company (ESCO) model from the buildings sector.
- ESCOs purchase technologies for use by companies, with no initial capital outlay required by the company.
- Companies pay a portion of the value of their energy savings to the ESCO for a pre-determined period of time.
- SmartWay is planning a pilot project to develop this concept for the trucking industry.

# 1. The Technology Package: SmartWay Upgrade Kits with Oxidation Catalysts

Some options for SmartWay upgrade kits:

1. High FE Truck w/ Oxidation Catalyst:

| Device                                | Cost/Unit (Retrofit)* | PM Reduction | NOx Reduction | FE Change  |
|---------------------------------------|-----------------------|--------------|---------------|------------|
| Oxidation Catalyst                    | \$1,500               | 25%          | --            | --         |
| Super Single Tires w/<br>alum. wheels | \$4,000               | --           | 8%            | 8%         |
| Trailer Aero Kit                      | \$3,200               | --           | 12%           | 12%        |
| Direct Fired Heater                   | \$800                 | --           | 19%           | 19%        |
| <b>Totals:</b>                        | <b>\$9,500</b>        | <b>25%</b>   | <b>19%</b>    | <b>19%</b> |

For a truck traveling 100,000 miles/year @ 6 mpg (16,667 gallons /year)

Fuel savings: 3,100 gallons @ \$2/gallon → **\$6,200/year**

Payback period: \$9,500 / \$6,200 → **1.5 years**

*\*Costs drop as technology is applied at OEM level (especially for tires)*

# 1. The Technology Package: SmartWay Upgrade Kits with PM Filters

Some options for SmartWay upgrade kits:

## 2. High FE Truck w/ PM filter:

| Device                                | Cost/Unit (Retrofit)* | PM Reduction | NOx Reduction | FE Change  |
|---------------------------------------|-----------------------|--------------|---------------|------------|
| PM Filter                             | \$6,000               | 80%          | --            | -1%        |
| Super Single Tires w/<br>alum. wheels | \$4,000               | --           | 7%            | 7%         |
| Trailer Aero Kit                      | \$3,200               | --           | 11%           | 11%        |
| Direct Fired Heater                   | \$800                 | --           | 18%           | 18%        |
| <b>Totals:</b>                        | <b>\$14,000</b>       | <b>80%</b>   | <b>18%</b>    | <b>18%</b> |

For a truck traveling 100,000 miles/year @ 6 mpg ( 16,667 gallons /year)

Fuel savings: 3,000 gallons @ \$2/gallon → **\$6,000/year**

Payback period: \$14,000 / \$6,000 → **2.3 years**

*\*Costs drop as technology is applied at OEM level (especially for tires)*

# What Partners are Saying

- **“By designing this program, it shows me and other carriers that EPA is concerned about our business as well as clean air.”**  
    **-- Rick Coomes, President, Coomes, Inc.**
- **“The very worst thing that'll happen to you is you'll save fuel, which means you'll make more money.”**  
    **-- Dave Berry, Vice Pres., Swift Transportation**
- **“The SmartWay Transport Partnership has been very helpful in assessing the value of some of the strategies we have or have thought of implementing over the next few years.”**  
    **-- Pam Mullin, Chief Financial Officer, KBD Transportation**



# Idle Reduction Technologies

# Mobile Idle Reduction Technologies

- **Auxiliary Power Units & Generator Sets**
  - \$5-7K, 250+lbs, maintenance, after-market, air emissions, fuel cost
- **Direct Fired Heaters**
  - \$1K-1.5K, lightweight, low maintenance, OEM, heat-only, low emissions, fuel cost
- **Automatic Shut-Down/Start-Up Systems**
  - \$1K, no weight issue, no maintenance, OEM, functions like home thermostat so engine idles when too cold or hot, fuel cost
- **Battery Powered**
  - \$7K-10K, 300-1,000lbs in additional battery weight, low maintenance, after-market, zero air emissions



# Stationary Idle Reduction Technologies

- Pedestal + Truck On-Board Components
  - Total cost of about \$7K, requires truck come equipped with electric HVAC/inverter-charger; hourly cost (about \$1/hr); limited availability
- Full Service HVAC System
  - Total cost of \$18K per space (50-70 space minimum deployment), hourly charge of \$1.60-1.80/hr; available in about 25 locations nationwide

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- For more information on IRTs
    - <http://www.epa.gov/otaq/smartway/idlingtechnologies.htm>
  - For more information about SmartWay
    - Paul Bubbosh
    - Bubbosh.paul@epa.gov